

Herbicides to Avoid in Your Compost

Clopyralid & Picloram

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Most herbicides and pesticides used in yards and gardens breakdown in the composting process. However, there are at least two broad leaf weed killers that persist in finished compost even when it has been "hot" composted. Traces of **Dow Chemical's clopyralid and picloram** in compost can be toxic to certain plants, stunting or distorting tomatoes, petunias, peas, beans and others.

These chemicals have been found in trace amounts at commercial compost sites at Washington State University (WSU), in Oregon, California, Pennsylvania, New Zealand and other locations. These sites routinely test for nutrients and pesticides. Yet when WSU sold a batch of compost to homeowners and greenhouses, some customers complained the compost damaged their plants.

WSU retested and found very low levels of picloram. Another site's test showed traces of clopyralid. Further tests showed that these chemicals do cause plant damage at concentrations **as low as 10 parts per billion**.

Farmers and lawn-care companies like these chemicals because they control broadleaf weeds, it does not need to be applied as often as other herbicides, and it has low toxicity to humans and other animals. These products are only available to certified chemical applicators. However, Dow Chemical wanted to make it available to homeowners in 2003. After all the concerns and bans on using clopyralid in CA and WA, Dow withdrew its application from EPA for homeowner purchase. However it is still used by certified applicators under certain circumstances in CA & WA. In many other states it is used on farm fields, golf courses and turf by some lawn care companies.

DO Not compost any plants treated with:

Herbicide	Some Brand Name
clopyralid made by Dow Chemical Co.	Confront Curtail Eclipse Hornet Millennium Stinger Transline Redeem Scorpion Tru Power Others – check label for contents
picloram made by Dow Chemical Co.	Tordon Grazon Others – check label for contents

Some Plants Affected by clopyralid and picloram

----results in crinkled leaves and twisted stems – auxin-like (hormone)reaction

- beans
- carrots
- eggplant
- lentils
- lettuces
- peas
- peppers
- potatoes
- radishes
- tomatoes
- asters
- carnations
- chamomile
- clovers
- dandelions
- daisies
- feverfew
- flowering tobacco
- lupines
- marigolds
- petunias
- sunflowers
- thistles
- zinnias

Home Composters: check your sources of grass, hay, stable sweepings, or other plant material to be sure they were not treated with clopyralid or picloram. Sugar beets, mint, wheat, oats and barley are crops clopyralid is often used on and they retain residual chemical in all parts of the plant. WSU found that clopyralid remains in grass up to 1 year from application.

Buying compost: ask for test results for these chemicals. Both chemical and bioassays will give you assurance that the compost will be useable.

Do your own Bioassay: Use peas.

These legumes are the most sensitive and display the most reliable susceptibility.

Mix 1 part compost with 6 parts healthy garden soil. Fill some pots with compost/soil mix. Plant 2 pea seeds in each. Watch to see if the 2nd set of leaves (true leaves) are distorted, curled or twisted, pale or yellowed and have abnormal leaf shape. If so, clopyralid is likely present. This bioassay detects clopyralid as low as 3 parts per billion. If peas show no effect, then chances are, nothing else will.

References:

www.urbancompost.org

www.wa.gov/agr/clopyralid.htm

www.puyallup.wsu.edu/soilmgmt/Clopyralid.htm

Bioassay from "From the Garden: Pea sprouts offer a quick answer on soil's herbicide contamination" by Ann Lovejoy, from NW Gardens, Feb 14, 2002.

See article at <http://seattlepi.nwsourc.com/nwgardens>

"What's Lurking in Your Compost? By Dan Sullivan, Organic Gardening, July/August 2002